THE WHALE-HEADED STORK OR SHOE-BILL: LEGEND AND FACT

By Maurice Burton and C. W. Benson

PART I

THE LEGEND *by* Maurice Burton, D.SC.

(The following article by Mr. Burton under the title " Deceptive Beaks, Small and Large " appeared in the Illustrated London News *on 27th December,* 1958 *and is reprinted from that journal with kind permission.)*

A BIRD'S beak has put me into difficulties. It is that of the supposed pterodactyl believed to have been seen alive in Africa. To introduce the subject, I take the liberty of quoting from a recent book, reviewed on this page only last week: *On the Track of Unknown Animals* by Bernard Heuvelmans:

> In 1923 Frank H. Melland published an account of his travels entitled *In Witch-bound Africa*. In one chapter he tells how he kept coming upon vague rumours about a much-feared animal called *kongamato*, said to live in the Jiundu swamps in the north-west corner of Northern Rhodesia, near the frontier of the Belgian Congo and Angola. He asked what it was. The natives told him that it was a bird, but not exactly a bird, more like a lizard with wings of skin like a bat's.
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> Melland noted down this reply, but only later did he suddenly realise its staggering implication. Then he renewed his questions and learnt that the beast's wing-span was between four and seven feet, that it had no feathers at all, its skin was bare and smooth, and its beak was full of teeth. Convinced that it must be some kind of flying lizard, he showed the natives pictures of these animals asking if they recognised their beast. They all immediately plumped for the Pterodactyl, excitedly muttering *kongamato*!
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> This irritable beast had a vile reputation; it was said to make canoes capsize, and merely to see it was death . . . According to Melland, the negroes were convinced that the beast was still living to-day and he himself was inclined to think that the *kongamato* had lived until very recently and still survived in tradition.

I knew of this account and have been, therefore, the more interested to note that, during the last few years, there have been several similar reports of a " pterodactyl-like creature " having been seen in Central Africa. These reports came sometimes through newsagency channels, and I have regretted not keeping a note of the details. The reports were not frequent, but they seemed to be insistent and to be markedly similar, so that I began to believe in the possibility of some survival of flying reptiles in inaccesible places.

This year, apparently, there has been " scientific observation of the Zambezi Valley during its flooding as a result of the Kariba Dam hydro-electric project ", with " a concentration of zoologists, biologists, bird, beast and fish-watchers in this comparatively

unknown part of Africa ". These words by Ian Colvin, *Daily Telegraph* Special Correspondent, introduce once again the pterodactyl theme:

> But I can report now several significant findings of game watchers here. One concerns a two-year-old theory that prehistoric animals still exist in the swamps of Bangweulu, Northern Rhodesia. This theory gained credence two years ago when an African was brought into the neighbouring Fort Rosebery with a deep stab wound in the chest and was asked the name of his assailant. He persisted in saying that he had been stabbed by a large bird in Bangweulu Swamp.
>
> When given pencil and paper he drew a creature remarkably like a pterodactyl . . . White settlers (also) affirmed having seen a creature like a pterodactyl.

In the Zambezi Valley Colvin photographed an extraordinary bird of dark plumage, four-foot tall, with a disproportionately large beak. It later proved to be a whale-headed stork, never before seen in the Zambezi Valley, which lies 400 miles south of the Banweulu Swamp. This, it is claimed, explodes the " pterodactyl myth ".

The whale-headed stork (*Balaeniceps rex*) is also known as the boat-bill or the shoe-billed stork. Its plumage is generally an ash-grey, lighter on the margins of the larger body feathers and greyish-black on the tail feathers. The legs are black, and the horn-coloured bill, the most conspicuous feature, is broad and boatlike. Its main centre of distribution is the White Nile and its affluents, but it extends as far south as Nyasaland. Its habitat is the margins of rivers and lakes near beds of tall reeds and well away from human habitations. Although it perches freely on trees, its nest is made among tall reeds or grass. Its food is fish, to catch which the boat-bill often stands breast-high in water with its enormous bill lowered to the surface of the water. The strongly hooked beak is believed by some authorities to be " specially adapted to seize and rip open turtles and the mailed fishes with which the waters of Central African abound ".

One other feature should be stressed: that there is a short bushy crest at the back of the head. Some pterodactyls had a large beak and the back of the head continued into a bony crest, as if to act as a counterpoise to the beak. It must be confessed that the moment the suggestion is made, and one mentally compared the appearance of the boat-bill's head with that of some of the pterodactyls, it seems the obvious explanation for the *kongamato*: and it is significant that one of those who saw the bird in the Zambezi Valley was heard to remark, on first seeing it, " It's a pterodactyl ". And, indeed, the boat-bill or whale-headed stork is such an extraordinary bird that anyone taken by surprise as it flies low overhead could be forgiven for mistaking it for a—pterodactyl?

This explanation may, as I say, be perfectly correct. It seems an obvious one. But one tends to grow suspicious of the obvious, and while not discounting the explanation, it is not a bad idea to consider it a little more closely. The first thing that occurs to me is that the boat-bill is said, when flying, generally to hold its enormous bill on its crop. This would give it a grotesque appearance, but would not heighten its resemblance to a pterodactyl. But it was not the Africans who called it a pterodactyl, it was the Europeans.

The evidence, as far as it is available, is as follows: No pterodactyl was found in the Zambezi Valley, only a bird that caused one observer to say: " It's a pterodactyl ". An African, twenty-five years ago, claimed he had been stabbed by a bird in the Bangweulu Swamp, 400 miles to the north of the Zambezi Valley. Melland, operating in an area north-west of the main Zambezi Valley (300-400 miles away) heard persistent reports of a bird " more like a lizard with wings of skin like a bat's ".

When a boat-bill is disturbed it flies off slowly " with a great noise ". The only sound it utters is a loud bill-clapping. These, with its grotesque appearance, could strike fear, if not terror, into an observer, which is not the best condition for making accurate observation. This argument might be advanced to explain away the alleged " wings of skin like a bat's ", " . . . no feathers at all, its beak full of teeth ". Is this likely?

It may be there is no pterodactyl living to-day. It may reasonably be that the boat-bill has been responsible for the stories of living pterodactyls . Nevertheless, the best we can say of the observations made in the Zambezi Valley is that they form the basis of a plausible theory. To go further than this and say that by the conjunction of three diverse series of events, each having taken place at widely separated points, a " pterodactyl-theory " has been blown sky-high, is not to approach the matter scientifically.

The coelacanth and the tuatara, contemporaries of the pterodactyls, are still alive.

Part II

THE FACT *by* C. W. Benson

I have been asked to write a " follow-up " to the immediately preceding article, by Maurice Burton. The whale-headed stork is alternatively known as the shoe-bill or boat-bill, while Cave and Macdonald (1955) refer to it as the bog-bird. It will be referred to in this article as the shoe-bill. Details are given below, but its definitely known range may be summarised as being from the Upper Shari River and the southern Sudan, south through the eastern Congo and western Tanganyika territory to the north of Northern Rhodesia, in swamps.

It is doubtful if the *kongamato* of the Jiundu Swamp can have any connection with the shoe-bill, and it must be merely some mythical, imaginary creature. I have not visited this area myself, but C. M. N. White tells me that it consists largely of ambatch and swamp-forest, which would not provide a suitable habitat for the bird. With regard to the record from the Kariba area of the Zambezi Valley, its occurrence there is even less likely. Again it is unlikely that there is any suitable habitat, which typically is flood-plain interspersed with papyrus swamp, and in any case R. H. N. Smithers tells me that he has seen the photograph claimed to be of a shoe-bill and convinced himself that it was merely of a juvenile saddle-bill stork (*Ephippiorhynchus senegalensis*), a species relatively well known in that area, and where I have seen it myself on several occasions. There is in fact nothing suggestive of a pterodactyl about it. It is a typical member of the stork family. It cannot however be denied that the shoe-bill occurs in the Bangweulu Swamps, though whether one could have caused a deep stab wound is another matter. I am quite unaware of any evidence that a shoe-bill under natural conditions would attack a human being, except that it might defend itself if wounded. Actually Jackson and Sclater (1938) state that one which was not killed outright (in Uganda) did not attempt to defend itself, " but simply snapped its formidable bill, with cutting edges like a turtle's, and so quickly that the clattering sound was very like that of a pre-war motor-cycle when being coaxed into starting ". On the other hand, Butler (1905) records that a bird kept in captivity in Khartoum was " capable of inflicting a powerful bite, the sharp cutting-edges of the mandibles leaving four deep cuts on a wrist or finger ". Owen (1958), whose account of the bird is repeated practically verbatim by him (1960), writes that when the bird is

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annoyed " the great forbidding beak snaps and rattles alarmingly, and a senior British official who was ill-advised enough to irritate a specimen in the Khartoum Zoo was chased some way across the lawns ". However, neither Butler's nor Owen's account is in keeping with the infliction of a stab wound, and certainly the very shape of the bill would seem to preclude such a possibility.

Heuvelmans (1959) has discussed the strange creatures known as *nsanga* and *chipekwe* supposed to inhabit the Bangweulu Swamps, which it is evident from his writings are really nothing to do with the shoe-bill. However, it may be that a myth in Bangweulu has arisen partly from the rarity of the shoe-bill there (of which more below), and partly from its bizarre appearance, though not really resembling that of a pterodactyl. Owen (1958) refers to it as being both " morose " and " sinister ". Furthermore he relates how, when escourting a party of distinguished Arab visitors around the Khartoum Zoo, one of their retainers stood dumbfounded and speechless before one of the shoe-bills which paraded the lawns, finally slowly shaking his head and observing, half to himself, " Wallahi! Mighty is the Government ". Other tributes to its remarkable appearance stem from the fact that there is a drawing of one on the title-page of Cave and Macdonald's book (1955), and of the head of one on the back-cover of that by Frechkop (1953), while Owen (1958) writes that it was the badge and tutelary totem of the Bahr-el-Ghazal Province of the Sudan.

With regard to Burton's description of the colour of the bird, he gives the legs as black, probably following Bannerman (1930). Schouteden (1948-50) records them as greyish-black. Both these authors could only have examined dried museum specimens, and Owen (1958), who had seen live birds at close quarters in the Khartoum Zoo, records the legs as yellowish-green (and the eye as yellow). The accompanying photograph gives no cause to doubt Owen.

Burton states that it is a fish-eater. Butler (1905) records that the stomach of one collected on the Bahr-el-Ghazal contained four fishes (*Polypterus* five to six inches long) and the jaw of a rat. Under the same reference he states that its food consists principally of *Polypterus senegalus*, which wanders a great deal into flooded grassland. Young birds reared in captivity thrived on a diet of one pound of fish and one pound of meat per day (Owen, 1958). Jackson and Sclater (1938), by reason of the fact that the stomach contents of one killed at five p.m. consisted merely of a little green fluid, and of " its reposeful somnolent attitude throughout the day " and large eye, suggest that it feeds at night. But there is no further evidence that it is nocturnal in habit.

Contrary to Burton's statement that it often stands breast-high in water with its bill lowered to the surface of the water, Butler (1905) says that it is " generally to be seen standing motionless on newly-burnt swampy ground or short grass flooded with an inch or two of water, inside the fringe of papyrus or sudd which separates the channel of the Bahr-el-Ghazal from the plains ". From my admittedly much less extensive experience in Northern Rhodesia I would agree with Butler, and probably it never ventures into deep water. Butler adds that he never saw a bird actually wading in water, and it almost invariably stands in the same attitude, with the great bill resting on the breast, while in flight the neck is drawn back like a heron's, the bill resting downwards against the breast. Owen tells me that the tuft of feathers at the back of the head (" tuft " seems a better epithet than " crest ", used by Burton) is more in evidence when the bird is excited. It is quite well shown in the accompanying photograph.

Burton says that when disturbed it flies off slowly " with a great noise ". Possibly if one is close enough the sound of the wing-beats as the bird takes off may be audible, but I think it is misleading to say that there is a ' great noise '. Butler records having once seen an individual soaring high in the air, and quotes other records of this, while as mentioned below Grimwood and I saw one soaring at Lake Kako. Butler only occasionally saw it perching in a tree, trees being scarce in its haunts, and there is no record of tree-perching from Northern Rhodesia. Generally it is solitary, Butler remarking that he never saw more than two or three together, and even so they were generally standing twenty yards apart. No sound of vocal origin appears to have been recorded by any observer.

Unless a view is obtained of the head, the shoe-bill could be mistaken for a goliath heron (*Ardea goliath*) or a marabou (*Leptoptilos crumeniferus*), either in flight or on the ground. The first time I saw one (in the Bangweulu Swamps) I mistook it at first for a goliath heron, as it was facing away from me, with the head lowered. But as soon as I obtained a proper view of the head there was of course no question of the bird's identity.

It has been usual to place the shoe-bill in the order Ciconiiformes, in a family on its own, the Balaenicipitidae, between the herons (Ardeidae) and the storks (Ciconiidae). However, recently, Mayr and Amadon (1951) placed it with the storks, being partly influenced by its bill-rattling habit, a characteristic of that family. But still more recently, Verheyen (1959) has favoured revival of the family Balaenicipitidae, expressing the opinion, on the basis of an anatomical investigation, that it is a bird showing a strange mixture of characters, recalling as much the herons as the storks. Certainly evidence on such an issue from observations of the bird in life is also conflicting.

But attention should also be drawn to the findings of Cottam (1957), who from osteological evidence suggests that the shoe-bill is more closely related to the Pelecaniformes than to the Ciconiiformes, and that the family Balaenicipitidae should be placed in the Pelecaniformes, possibly near the pelicans (Pelecanidae). Cottam also quotes as supporting evidence the fact that the egg (as described by von Heuglin) is white with chalky lumps, such lumps also being found in eggs of some species of pelican and cormorant (both members of the Pelecaniformes). Jackson and Sclater (1938) state that the egg is somewhat rough, covered with a white chalky deposit, and Captain C. R. S. Pitman has expressed to me the opinion that it is definitely of a pelican type. It is apposite to suggest here that another valuable line of investigation would be an examination of the egg-white protein (Sibley, 1960). Cottam's further quotation of von Heuglin to the effect that birds join up in parties to herd shoals of fish into corners, a communal fishing habit characteristic also of some species of cormorant and pelican, is much less convincing. The majority of the records quoted in the present paper refer to single birds, and never to more than three in close proximity to each other. But other habits which can be quoted in support of a pelican relationship are that of the bill resting on the breast, both when on the ground and in flight, and occasional records of soaring.

Nobody has ever suggested that the shoe-bill exhibits any geographical variation. Chapin (1932) was able to compare a specimen from Kake Lisale, in the south-eastern Congo, with one from as far away as Lake No, in the Sudan, and could find no difference of consequence.

Before giving details of the occurrence of the shoe-bill in Northern Rhodesia, a summary may be given of its known distribution (quite markedly discontinuous, due to its habitat requirements) elsewhere:

(*a*) In the eastern watershed of the Upper Shari River, between 9° 30′ and 10° 15′N. and 21° and 22°E. (Blancou, *cit.* Bannerman, 1951).

(*b*) In the Sudan, as far north as 9°, on the Bahr-el-Ghazal River, thence westward at about this latitude to Aweil (27°E.); extending southward, in the vicinity of the White Nile, to about 7°N. (Owen, 1958). Owen tells me that it is not uncommon in the north of this local range, along the Bahr-el-Ghazal and Lol Rivers west to Aweil, but that further south, although there is apparently perfectly suitable terrain, it is sparse.

(*c*) In Uganda, at the north end of Lake Victoria, Lake Kioga, on the Victoria Nile in the Murchison Falls National Park, probably on the Albert Nile; also one record from the easternmost district of Karamoja (Owen, 1958). With regard to the Karamoja record, Owen tells me that it is by A. M. H. Henley, of the Uganda Game Department, and a very reliable observer. Jackson and Sclater (1938) record it as far north as Dufile, on the west bank of the Albert Nile near Nimule, and cite a record of it having been seen by credible witnesses on the west coast of Lake Victoria as far south as the Kagera River. Also, Chapin (1932) cites a record of one killed on the Kagera.

(*d*) In the extreme north-east of Ruanda Urundi, in papyrus in the Kagera National Park, on the Kagera River (Edmond-Blanc, 1958). *See* also immediately below.

(*e*) From Tanganyika Territory, in the Game Department report for 1955-56 (page 27), there is a record of one seen in papyrus on Lake Mujungu by J. Haezaert, of Gabiro, Ruanda Urundi (*see* also list of Honorary Game Rangers on page 42 and accompanying map thereto). D. K. Thomas, Deputy Game Warden, Tanganyika has suggested that this locality is the same as Lake Majunu, in the Kagera District of Tanganyika, shown on the 1: 1m. map of the territory at 1° 45′S., 30° 50′E. I have also traced a Lake Mujunju, on a 1: 3m. map of the Congo (Inst. Geograph. Milit., Brussels, 1953) at 1° 40′S., 30° 53′E., just across the border from Ruanda Urundi. There can scarcely be any doubt that both these latter two localities are the same as Lake Mujungu. They are approximately only fifty miles south-east of Edmond-Blanc's Ruanda Urundi locality, and moreover he was accompanied by a " Conservateur Haezaer ". Thomas has also very kindly told me that one was seen by B. W. H. Stronach, Game Ranger, Tabora, near Nkilandagoga Village, in the Kibondo District at approximately 3° 40′S., 29° 50′E. (the co-ordinates actually apply to Ruanda Urundi and would appear to be not absolutely accurate). He strongly vouches for Stronach's reliability. The late W. S. Isemonger, a reputable observer, who knows the Rukwa Valley very well, and since 1937 has visited it frequently, assures me that he saw a pair there during the dry season of 1955 (more precise date not recollected), and again likewise sometime during June-August, 1957. Vesey-FitzGerald and Beesley (1960) do not mention it from the Rukwa, and obviously it must be excessively uncommon there. The former has suggested that the birds which

DISTRIBUTION OF THE SHOE-BILL.
Localities whence recorded marked ×.
SUDAN
Fort LAMY
Chari
marsh
CAMEROONS
FRENCH EQUATORIAL AFRICA
White Nile
MALAKAL
ADDIS ABABA
ETHIOPIA
Nile
JUBA
L. Rudolf
UGANDA
L. Albert
KENYA
Congo River
L. George
L. Edward
ENTEBBE
NAIROBI
CONGO
L. Kivu
RUANDA URUNDI
L. Rukwa
LEOPOLDVILLE
ANKORO
TANGANYIKA TERRITORY
Dar es SALAAM
L. Kabamba
L. Mweru
L. Rukwa
KAMBOMBA
ANGOLA
NDOLA
BALOVALE
NORTHERN RHODESIA
NYASALAND
Kafue R.
Zambezi R.
Cunene R.
MUMBI
LIVINGSTONE
SALISBURY
SOUTH WEST AFRICA
SOUTHERN RHODESIA
MOZAMBIQUE
BECHUANALAND
TRANSVAAL

Isemonger saw were mere strays, because there is no *permanent* swamp in the area except in the south, near the mouth of the Songwe River. Moreover in the Rukwa Valley there is no papyrus, with which the bird is so often associated. Vesey-FitzGerald thinks it possible that it also occurs in the swamps of the Malagarasi. For a general account of the vegetation of these areas, and a map, *see* Vesey-Fitzgerald (1955).

(*f*) From the Congo, recorded by Chapin (1932) from swampy localities between Bukama and Lake Kisale, approximately between 8° 15′ and 9° 15′S., and 26° and 26° 30′E. Verheyen (1953) does not mention it in his comprehensive work on the birds of the Upemba National Park, into which these swamps abut on the western side. However, this is not altogether surprising, in view of the general rarity of the bird. Chapin also gives a record from Lake Kabamba, slightly to the north, at 7° 53′S., 27° 01′E., while Schouteden (1948-50) records it from Ankoro, which according to Chapin (1954) is at 6° 46′S., 26° 57′E. I have myself seen the head of a specimen preserved in the fisheries research station at Kilwa, on the south-west shore of Lake Mweru, and presumably obtained in the swamps at the mouth of the Luapula River. It probably also occurs on the boundary with Northern Rhodesia, in swamps draining into the Mweru Marsh, *see* also below. Chapin (1932) rejects records from Stanley Pool, on the lower reaches of the Congo.

Long ago Sir Harry Johnston (*Ibis*, 1883, p.587) recorded the shoe-bill from Humbi on the Cunene River, in south-western Angola. Doubt has always been cast on this record. However, R. H. N. Smithers, who visited Humbe in August, 1932, considers its occurrence there as by no means impossible. The Cunene in this locality runs through a well-marked valley about three miles wide, and containing a flood-plain about one mile wide, with much mud and phragmites reeds (and probably some papyrus as well). At the time of his visit the plain was swarming with ducks. Bannerman (1930, p.87) cites a record from Lake Nyasa (Burton above also records it from Nyasaland), the origin of which I have been unable to trace. It is not mentioned in any of the references which he quotes, nor does Johnston (1898) mention it. Geographically this is much more probable than the Cunene record, but there has been no corroboration in the past forty years. During twenty years residence in Nyasaland myself (1932-52) I never saw or heard of it. However, the possibility of it occurring very sparsely in the large areas of swamp at the north end of Lake Nyasa cannot be completely excluded.

It appears that in all the foregoing localities the bird is very uncommon, the only exceptions being Lake Kioga, in Uganda, where it is stated by Owen (1958) to be not infrequent, and perhaps still so in the north of its range in the Sudan (Butler, 1905 records seeing some eighty individuals in the course of nine days travelling along the Bahr-el-Ghazal and Jur Rivers, and *see* Ross Pike below). Northern Rhodesia is no exception to this. Its occurrence in this Territory was first mentioned by White and Winterbottom (1949), reports by Lancaster and Bredo from Bangweulu being cited. Various more positive records have since come to light, which may be summarised by localities (already published information, in Benson and White, 1957, is included, and enlarged upon; it may be assumed that all birds seen were on the ground unless otherwise stated)—

Bangweulu Swamps (any localities referred to therein will be found on the map in Debenham, 1952). During a fortnight in February, 1954 I covered over 200 miles by motor-boat through the swamps, and kept a special look-out for it, but

saw one only, near Lake Chali. Between 1954 and 1959, during some eighteen hours in all of flying over the area at low altitudes, mostly occupied in enumerating lechwe, I only saw five individuals. Four were recorded in the course of a single flight on 20th October, 1954, one of them being seen level with the 'plane at a height of 500 feet or more above the ground. On 31st October, 1959 an excellent view was obtained of one on the Lunga Bank. We circled around it to within fifty yards, at near ground level, but it did not take to flight, and seemed quite unconcerned. P. Wormell, when employed by the Forestry Department, saw one near Samfya in July, 1956. E. G. Ross Pike, Fish Ranger, Samfya, who has frequently toured the area during 1955-60, has seen it only the once, a lone individual on the north-east side of Lake Chali in late April, 1958, and remarks that it is quite common in the sudd of the southern Sudan, where he has also worked, and is usually seen there in pairs. W. V. Brelsford, who spent much time in the swamps during 1942-44 while District Commissioner at Luwingu, does not mention it in his account of the birds in *Ibis*, 1947 pp.57-77, and has personally recently confirmed that he never saw it. Nor did Major W. E. Poles, until recently a member of my department, who made several lengthy tours of the south-east of the area during 1948-50. On the other hand, L. Allen, Game Officer at Mpika since 1959, saw two, 200 yards from each other, south-east of Ncheta Island on 23rd April, 1960, and further south-eastward, at least three lone birds near the Itiri Plain (12°S., 30° 30'E.) during the period 25th April to 1st May, 1960. J. D. Tomlinson, of the Water Affairs Department, who has toured the swamps extensively since July, 1954, saw a pair six miles east of Mpanta Point on 12th December, 1957. He has also seen it at the junction of Lake Chali with the Tushingo Channel. Tomlinson knows it by the nickname of " Lesser Lechwe Eater ", because the local Africans say that it has been known to eat the meat of young lechwe. This possibility cannot be excluded, since my colleague B. L. Mitchell tells me that on the Kafue Flats newly-born lechwe are left for periods untended by their mothers, hidden in thick grass, and, as recorded above, the shoe-bill does eat meat to some extent. Tomlinson's colleague W. D. C. Brickhill, who has been touring the swamps frequently since 1957, has seen it twice only, one on the Lunga Bank in September, 1959, and another on Chafya Island (20 miles east of Ncheta Island) on 12th April, 1960. A. P. Bowmaker and D. Harding, of the Joint Fisheries Research Organisation, during 4-8th November, 1960, were fortunate enough to see as many as six on *Vossia* flood-plain east of the Luapula, near the south end of the swamps, and actually saw four simultaneously, of which two were within five yards of each other. Both Allen and Brickhill give the local (Unga) name as *ipumambao*, which White and Winterbottom (1949) give as Bemba and Bisa for flamingos. Allen gives the Bemba name as *bumba*, and J. Fairhurst, District Commissioner, Luwingu the Bisa name as *mukula*, both of which White and Winterbottom quote for the goliath heron. Certainly the goliath heron and shoe-bill could be confused with each other, if the heads were not visible. Tomlinson gives the local name as *mukasa*, which White and Winterbottom give as both Bemba and Bisa for the purple heron (*Ardea purpurea*).

Kasanka Game Reserve. The only positive records I have received are from L. B. S. Estcourt who saw single birds in the swamps around Lake Chitwi at the south end of the area, respectively on 8th September, and 24th October, 1955. Estcourt was at that time Game Officer, Serenje.

Mweru Marsh. D. Vesey-FitzGerald, of the International Red Locust Control Service, saw a pair in the Fungwa Swamp, 12th September, 1954. This is a small area of less than a square mile, only some six miles east of Lake Chishi, which is within the area of the marsh, at the southern end, and so this record may properly be included here. The marsh has frequently been visited by many people, especially members of my department or the locust service, who could have been expected to recognise the bird, and yet there are only the following records.: During more than six hours low-level flying on 25th and 26th April, 1960, in which the whole area was covered, for the purpose of making a count of game animals, F. I. Parnell, B. E. Mitchell and I recorded one from the north of the marsh, in the delta of the Choma River, a pair between this delta and that of the Mwawe, and another pair actually outside the marsh, in swamps bordering the Choma, possibly just inside the boundary with the Congo. We had an excellent view of the second pair, and circled around them at not more than fifty yards range. They remained on the ground, which Parnell, Mitchell and I all agree appeared to have been deliberately flattened, within a foot or two of each other, apparently quite unconcerned. During similar flights over the area on 27th and 28th October, 1959, none were seen. Also P. S. M. Berry, now in my department, saw one near Musombwe, on the west side of the marsh, on 25th April, 1960. I am indebted to D. Vesey-FitzGerald for the only further records. He saw one himself a few miles south of Musombwe, in flooded *Vossia* grass-swamp, on 25th October, 1957. K. W. Kühne saw one at Musombwe on 4th June, 1957, and a pair near Bulaya (towards the north-east of the marsh) on the edge of papyrus, on 16th November, 1958. There are also records of it being seen by Africans towards the south of the marsh, at Lake Chishi, on the Kasenga River, and on the Mofwe and Lunsangwe Dambos (the Lunsangwe lies a few miles to the north-east of the Fungwa, and, like it, is not strictly speaking within the area of the Mweru Marsh). According to both Mitchell and Berry, the local (Tabwa) name is *chifumpafumpa*, while Vesey-FitzGerald gives the Bemba name as *totwe*, practically the same as *ntotwe*) the Senga (Luangwa Valley) name as given by White and Winterbottom (1949) for *Ardea* spp., herons.

Lake Kako. This is an area of about half a square mile of swamp, much of it papyrus, on the north-west side of the Sumbu Game Reserve. On 10th October, 1954, Major I. R. Grimwood and I saw one soaring several hundred feet overhead. On 11th October, 1956, I caught a definite glimpse of one which made a short flight through some dense papyrus, quickly disappearing.

Luapula River. One was shot at Kampemba (on the lower Luapula, between the mouth and the Johnston Falls) in April, 1950 by I. G. Cunnison, the head of which was examined by Dr. J. M. Winterbottom.

Itawa Swamp, near Ndola. My colleague W. F. H. Ansell has informed me that T. H. Carswell found an injured bird in this locality in February, 1943. Carswell is a reliable observer, and afterwards examined a mounted specimen at the Royal Scottish Museum, Edinburgh, satisfying himself beyond doubt that the Ndola bird was a shoe-bill. In the *Rhodesian Farmer* dated 2nd August, 1957, on page 4 there is a photograph of one found at Ndola in 1943 with a broken wing, under the caption " Was this the pterodactyl ? " No doubt this was the bird which

Carswell found. I recollect that a little earlier in 1957 there had been some correspondence in one of the local newspapers, the *Northern News*, about pterodactyls in the Bangweulu Swamps.

Kafue National Park, near confluence of Kafue and Lufupa Rivers. G. Bell-Cross, a particularly reliable observor, and a member of my department, saw a pair on a small pan on 22nd June, 1958. In spite of the fact that the swamps in the north of the park, along the Lufupa, are frequently patrolled by members of my department, this is the only record.

It is evident that in Northern Rhodesia, as generally elsewhere, the shoe-bill is excessively uncommon. Probably it has no extensive movements, since there are records for February, April, June, September, October, November and December. It might be thought that it would occur in the vast swamps of the Kafue Flats. But this area has been well patrolled, not only from the ground but also from the air, especially by B. L. Mitchell and J. M. C. Uys, of my department. Never has a record been forthcoming. On the other hand, it could occur on Lake Lusiwashi, in the north of the Serenje District, and in swamps along the Chambeshi in the Chinsali District. It should certainly also be sought for in the much less well known Lukanga Swamp, and even perhaps along the Manyinga River, in the Kabompo District, and in the extensive swamps in parts of Barotseland, the Balovale District and eastern Angola. Due to its extreme rarity, it could conceivably have been overlooked.

Absolutely nothing is known about the breeding of the shoe-bill in Northern Rhodesia. However, it is likely that it does so towards the end of the dry season, because Chapin (1932) cites a record of three young birds seen in October, 1911, said to have been hatched from a single set of eggs, taken from a nest, a mere heap of vegetation, in papyrus, at Lake Kabamba. This lake is only 150 miles in a straight line north-west of the mouth of the Luapula River, and the season in these two localities (and any others in Northern Rhodesia) would not materially differ. Owen (1958) claims that the nest has never been seen by a European. However, Butler (1905) relates that a Sergeant Sears, of the Egyptian Army, had often seen nests with young birds on plains inland from the Jur River, in the Sudan, at the end of March and beginning of April. The nests were mere flattened-down spots in the high grass on the dry ground, containing one or two young only. Butler also records nestlings in February (covered in grey down with a fulvous tinge), while according to Owen (1958) the breeding time in the Sudan is usually in October, at the period when the bulk of the rains are over and the floods are beginning to subside. Owen, commenting on the above, emphasises that egg-laying does not start until the floods are beginning to subside, so obviating any danger of nests being flooded out, and adds that it continues into the early dry season (there is a single rainy season at this latitude, from April, to October).

Jackson and Sclater (1938) state that a Captain Hutchinson saw a nest in the Lake Kioga area of Uganda, where it breeds between March and June. It was a large platform of reeds and rushes with grass lining, floating or resting on sudd, and hidden from view by reeds. This is quite a different type of site from that described by Sears. The eggs are described as white with a faint bluish tinge, somewhat rough and covered with a white chalky deposit. Three eggs from Lake Kioga measured 81-82 by 60-61 mm.

It appears that in the Sudan the shoe-bill lays eggs at the end of the rains and in the early dry season. March to June in Uganda coincides with the period of the short rains, but like many other birds there may in reality be no marked breeding season in this

equatorial area. The record from Lake Kabamba, in the Congo, points to dry season breeding. There is no indication of the age of the young, but one may suppose that they were from eggs laid in September. This month, then, may be the best prospect for finding a nest in Northern Rhodesia. It is suggested that the localities offering the best chance of success are the Fungwa Swamp or Lake Kako, both small, compact areas, whence birds have been recorded in September and October respectively. On the other hand, the observation above on a pair to the north of the Mweru Marsh in late April is also worth pursuing. Egg-laying at that time of the year would accord well with Owen's observations in the Sudan.

Owen seems to have been the first person to photograph a bird in the wild, and his results accompany his 1958 article. On one occasion he managed to stalk as near as twenty-five yards to a bird. Since then Gordon (1959) has related how he was able to film one which approached as near as five yards to his car, in the Murchison Falls National Park, in Uganda.

It should be clear from this article that our knowledge of the shoe-bill in Northern Rhodesia is rudimentary, and that the opportunities for further study, by anybody who can find the time, are very considerable. An aerial reconnaissance would be a valuable preliminary. It was appropriate that in 1957 the Northern Rhodesia Government saw fit to place this unique and uncommon bird on the list of completely protected species.

It has been shown that the alleged occurrence of the shoe-bill in the Zambezi Valley was due to confusion with the saddle-bill stork. On the other hand, stories of pterodactyls in Bangweulu could be derived from the shoe-bill, by reason of its rarity in that area and its remarkable appearance. But the story of a lizard-like creature, with wings of skin like a bat's, in the Jiundu Swamp, would appear to be a pure fantasy. As Pitman (1934, p.61) aptly remarks, " In all these ' mystery ' creatures what is most remarkable is the fact that no specimen has ever yet turned up for scientific examination ". Incidentally the same author (p.59) makes reference to a similar creature in the " dense, swampy forest region of the Mwinilunga District ". in the east of which the Jiundu Swamp in fact lies. One may also mention that one of my colleagues, who shall remain nameless, once received a report of a dodo seen near Ndola. Perhaps it was a shoe-bill, which has been recorded from there. The drawing of the head of a dodo in *Alice in Wonderland* is somewhat reminiscent of that of a shoe-bill. Finally, one may draw attention to the article by Brelsford (1961), who in his concluding paragraph rightly remarks that these myths do add a richness to our folklore.

I am most grateful to my Director, F. I. Parnell, and to T. R. H. Owen, for reading the manuscript of this paper, and for various helpful suggestions. The latter has also very kindly drawn the map. It must be mentioned that he has had exceptional field experience of the shoe-bill. He served from 1926 to 1953 in the Sudan Political Service, for eight years of which period he was in shoe-bill country. From 1954 to 1957 he was employed by the Department of Game and Fisheries, Uganda, when he had further opportunities of observing the bird. I am also very grateful to the many people who have supplied information, to Mrs. B. P. Hall, of the British Museum (Natural History) and M. P. Stuart Irwin, of the National Museum, Bulawayo, who have looked up various references for me, and to my wife, P. S. M. Berry and J. Lumina for assistance in the actual preparation of this paper.

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POSTSCRIPT

G. C. R. Clay tells me that he saw a shoe-bill in the Bangweulu Swamps in March or April, 1946, when he was District Commissioner, Luwingu. He had previously seen several in the Khartoum Zoo, while returning from leave by air, and so recognised it at once. Knowing that the bird had not at that time been recorded from Northern Rhodesia and that the record would therefore be doubted, he fired at it, but it flew away, apparently unscathed. His Head Messenger, who also saw the bird, told him that it was said to live on young lechwe, the interesting possibility of which has already been mentioned.

Some valuable information has also been received from B. Cooper, who was for ten years Game Ranger for the Lake Province of Tanganyika Territory, and the Kibondo District of the Western Province. He has seen it near the Kyerwa Tin Mine, which is just inside Tanganyika, close to the border with Ruanda Urundi, and less than twenty-five miles north-north-west of Lake Mujungu, and also at Lake Ihema, a similar distance south-west of Mujungu, and just inside Ruanda Urundi. Both these localities have been traced on the Congo map already cited in dealing with Tanganyika records. At Lake Ihema he managed to obtain a photograph, which he has lent me. Although it is very under-exposed, it is unquestionably of a shoe-bill. He has also seen one on the eastern shore of Lake Burigi (1° 59′S., 31° 21′E. to 2° 11′S., 31° 24′E., *see* Chapin, 1954).

Cooper also remarks that he has " never once seen the bird doing anything at all! It has never even moved its bill appreciably as birds often do, preening themselves, etc.". The bird which he photographed " was standing in rather a dejected manner and so low in the grass that I couldn't get a decent picture. So I had to stand up in the canvas boat I was in and threw a twelve-bore cartridge almost at it, to wake it up a bit! ". He has never seen more than one bird at a time. It has always been in places where sitatunga can also be seen out in the open. We believes that " even a very keen bird watcher could easily miss seeing a bird like this one, large and conspicuous as it may appear, since even with my own love of the water and the swamps, I only saw it a very few times during my ten years in its habitat ".

One of my staff, Game Guard Simon Mulenga, shown the accompanying photograph, assures me that he saw one in a swamp near Chief Chitanda's, on the southern edge of the Lukanga Swamp, at 14° 40′S., 27° 35′E., in November, 1958. Shown pictures of the goliath heron and marabou stork, he emphatically denied that it was either of these birds. He added that he was so astonished by the appearance of the bird, which he had never seen before, that the following night he dreamed that the bird tried to catch his hand. He struggled with it, and broke its neck! I see no reason to doubt that he did see a shoe-bill. Also, Fish Scout Peter Musenyesa, similarly examined, is sure that he saw two within a few feet of each other on a plain in the Balovale District west of the Zambezi at 13° 45° S., 23° E., in October, 1960. He is of the Lovale tribe, but does not know any name for it.

L. Allen, as a result of another tour of the Bangweulu Swamps, in March, 1961, suggests that the habitat is more restricted than is realised. He saw four birds together where the Lukulu River looses itself in the swamps (at about 12° S., 30° 25′ E.). They kept together even when disturbed and they flew off for 100 yards or so. This happened seven times until finally they flew off together out of sight. A pair was seen not far from this site, another pair four miles up the river, and a single bird where the Lumbatwa looses itself in the swamps, thus nine individuals in all. These observations were made in the course of two days only, though during three weeks on the Itiri Plain, where there are no rivers, but at this season shallowly inundated floodlands, he saw none at all. He suggests that the birds need, in addition to floodland, an adjacent area of deep water with dense reeds. This seems to agree with the description by Butler (1905) of the habitat. Allen secured some photographs, unfortunately too small to be worth reproduction, but indubitably of the shoe-bill. He also confirms the Unga name already given, and states that *bumba* is the Bisa as well as the Bemba name. I have also been able to peruse J. E. Hughes' book, *Eighteen Years on Lake Bangweulu* (1933), but could find no mention of the bird at all.

I have now been able to read at first hand Blancou's account of the bird on the Upper Shari River, in *L'Oiseau*, 1939, pp. 480-485, referred to by Bannerman (1951). According to his local informants, the bird is not rare in this area, and lives exclusively on fish. Blancou also suggests, from personal experience of the habitat, that it may well exist along the Congo between its mouth and Bangui, excluding the mountainous areas between Boma and Stanley Pool, and between Stanley Pool and Bolobo. Attention must also be drawn to a record by de Lisle (*L'Oiseau*, 1956, pp. 1-3) from Diamaré, in the Cameroons. This is at 11° N., 14° E., south of Lake Chad, and considerably further west than the Upper Shari.

Captain C. R. S. Pitman, the late Game Warden, Uganda, tells me that W. H. Fiske, when Reclamation Officer on Lake Victoria, found a nest, a broad mass of reeds, containing two (or three) eggs in the Katonga Swamp, at the north-west corner of the lake, in late April (probably 1923). Also, according to Bakenyi fishermen, eggs are to be found at Lake Salisbury, in the Teso District, in May and June. These records agree with Jackson and Sclater (1938). Pitman gives a list of sixteen precise localities in Uganda, in most of which he has seen the bird himself. Those worth particular mention, being definitely additional to those already given, are the deltas of the Nile and the Semliki with Lake Albert; the Tochi Swamp, in Acholi country; and the Lango Swamp. He suggests that it may not be so uncommon in Uganda as is often supposed. Other points which he makes are: it is as noiseless in flight as a heron or pelican; in flight, including when soaring, the head is tucked back, like a pelican's; it does feed by day (*see* Edmond-Blanc, 1958), but mostly by night, and it is in the evening crepuscular when one sees it stirring into activity; it never stands breast-high in water; tree-perching is most unusual; at Lake Salisbury seven were once seen together.

Pitman has also drawn my attention to a paper by Schönwetter, " Das Ei des *Balaeniceps rex* Gould ", in *Beiträge zur Fortpflanzungsbiologie der Vögel mit Berücksichtigung der Oologie*, vol. 18, No. 2, 1942, pp. 41-45, for a photostat copy of which I have to thank J. D. Macdonald, of the British Museum (Natural History), and which C. M. N. White has kindly translated. Of particular interest is a record of a clutch of two eggs from the Bahr-el-Ghazal, collected on 25th February, 1918, and a single egg from this area on

6th December, 1911. Both are dry season records, thus agreeing with Sudan records given above. No details of date and locality are given of other eggs examined, but the extremes of measurements of ten eggs are 80.1 to 90.0 by 56.9 to 61.3 mm. Most of these other eggs, at least, were evidently collected in the Sudan about a century ago. Schönwetter also points out that the eggs have a lime covering, the innermost zone of which is blue-green, and are most like those of pelicans, though also resembling those of *Chauna* (screamers), the latter a South American genus usually placed near the ducks and geese. But in pelicans and screamers the inner zone is not blue-green but yellow or orange, and Schönwetter is not prepared to commit himself as to whether the eggs definitely throw any light on the affinities of the shoe-bill. His paper is not mentioned by Mayr and Amadon (1951), Cottam (1957) or Verheyen (1959).

SUMMON A JUDGE

Dr. Michael Gelfand in his new book, to be reviewed in our next number, *Northern Rhodesia in the Days of the Charter* tells the following story:

> " Mr. Justice Beaufort, the Judge of the High Court of the Territory, was summoned in his private capacity as a householder in the Magistrate's Court, Livingstone on 4th January, 1916, for ' failure to take reasonable steps to prevent the breeding of mosquitoes ' in his compound. Judge Beaufort did not appear. He wrote to the Magistrate on 14th January, 1916: ' The summons should never have been issued . . .I am a Judge of the High Court and the only Judge of it . . . I have no appeal open to me. I am the only person in the Territory in that position . . . For that reason I hold that no summons against me should issue from your Court . . . In such matters I affirm as sole Judge of the High Court that I am outside your jurisdiction.' Mr. Willis, the Attorney for the prosecutors, expressed disagreement with the argument. After his evidence the Magistrate dismissed the case ' in view of the contention of Mr. Justice Beaufort that he is outside the jurisdiction of the Magistrate's Court because he has no right or appeal '. Wallace (the Administrator) referred the matter to his legal adviser, P. J. Macdonnell, who said: ' The point raised seems a novel one and I can find no authorities which give me any light upon it.' It was then referred to the High Commissioner's legal adviser (in Cape Town). His opinion, dated 9th February, 1916, states: ' In my opinion the Magistrate was wrong in dismissing the case. A Magistrate's Court has jurisdiction over all persons within the district assigned to it. The Constitution of the High Court permitted of additional judges being appointed.' "

PIONEERS ASSOCIATION OF NORTHERN RHODESIA

Following our article on this Association in the last number of the *Journal* we have received inquiries for the address of the Secretary. It is P.O. Box 379, Lusaka.